

**IEEE CINCINNATI
SECTION
NEWSLETTER
FEBRUARY 2003**



FEBRUARY MEETING

ENGINEERS AND SCIENTISTS SERVING GREATER CINCINNATI
invites you to attend the
68TH ANNUAL RECOGNITION and AWARDS PROGRAM
to be held on Thursday February 20, 2003 at

The Cincinnati Museum Center at Union Terminal
1301 Western Avenue
Cincinnati, Ohio 45203

Time: 6:00 P.M. - Social Hour (Cash Bar)
7:00 P.M. - Dinner
8:00 P.M. - Program (Mr. Gene Corley)

Cost: \$35/person.

This dinner is a joint meeting with the American Society of Civil Engineers (ASCE), the Ohio Society of Professional Engineers, and the Northern Kentucky Chapter of the Kentucky Society of Professional Engineers (NKSPE). In addition, many other technical and professional societies will be represented by those in attendance. Come and share experiences with other professionals, make new friends, enjoy good food and meet this year's award recipients.

Additional Information:

Speaker: The guest speaker will be Mr. Gene Corley, who was the lead investigator on the collapse of the World Trade Center. Mr. Corley will discuss some of the technical details of how and why the collapse happened. Additionally, entertainment will include approximately 30 minutes of singing by the "Baby Grands" - a group of young girls from the School of Creative and Performing Arts.

Reservations: To make reservations, phone or e-mail Tracy Watson at 859-598-7460 (twatson@sdl.org). Reservations must be made by February 14, 2003. You will need to provide names for name tags. Cancellations will need to be received prior to February 14, 2003 to avoid being charged for the evening.

Payment: You may pay at the registration table with either cash or check. You can also mail your payment (payable to ESC) to:

Sanitation District No. 1
1045 Eaton Drive
Fort Wright, KY 41017
Attention: Tracy Watson

2003 AWARD RECIPIENTS

RESC Lifetime Achievement Award (selected by RESC)

Arthur T. Kupferle, Retired, Cincinnati Bell Telephone Company

Distinguished Engineer Award (Herman Schneider Award)

Umesh Chandra, Ph.D., President, Modern Computational Technologies

Young Engineer of the Year Award

Julie A. Wagner, P.E., Chemical Engineer, Environmental Quality Management, Inc.

Young Scientist of the Year Award

James P. Gibson, Jr., Assistant Project Manager, Sanitation District No. 1

Professional Accomplishment Award - Academic

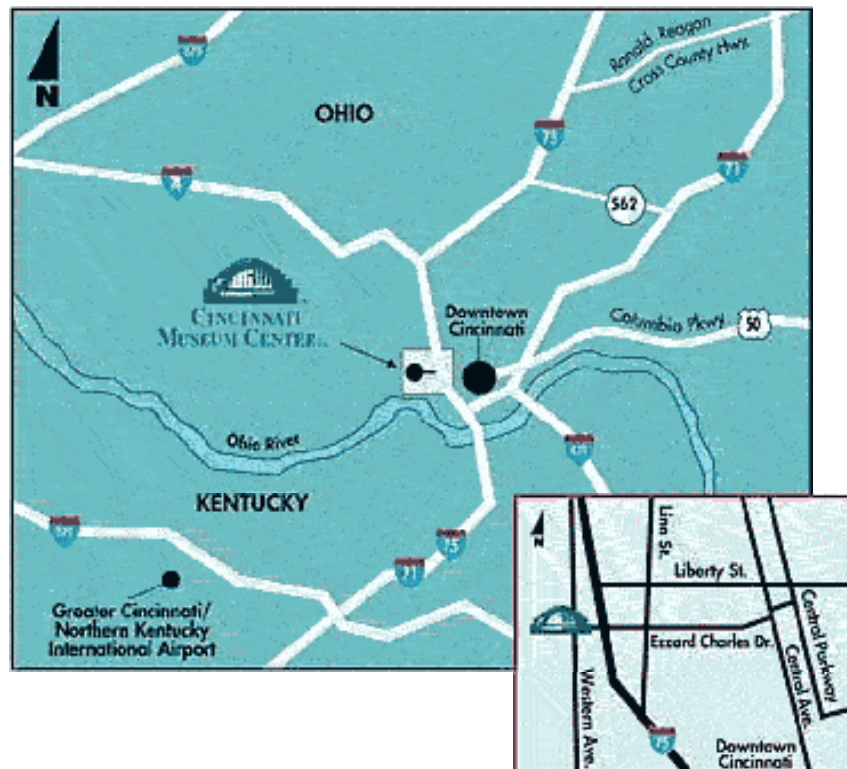
Ernest L. Hall, Ph.D., Professor of Robotics/Director of the Center for Robotics Research, University of Cincinnati

Professional Accomplishment Award - Engineer in Consulting Field

Timothy E. Koch, P.E., Vice President, URS Corporation

Community Service Award - Engineer in Government

Bret E. Norton, P.E., Senior Engineer, Cincinnati Water Works



Questions: If you have questions or need additional information, feel free to contact Tracy at the phone number listed above.

CHAIR'S MESSAGE

by Fred Nadeau, Section Chair

I would like to thank all the 2002 officers for this last year's outstanding program and want to welcome the new 2003 Section officers. Last year's program set a mark for us to repeat and exceed and I am looking forward to a great program year. I certainly want to encourage all the Greater Cincinnati Section members to attend our program meeting lectures and industry tour events. These lectures/tours are created and presented for your benefit to make you grow in your knowledge and professional skills.

We certainly would like to hear from the members if there are certain program topics or events you would like to have us present at our monthly meetings. We have our officers business meetings separate from the program meetings in order to keep the program meeting focused on your needs, both educational and professional.

I hope all had a safe and happy holiday season and I am looking forward to meeting many more of our members at our monthly meetings. Please feel free to contact me with your comments and/or ideas.

Fred Nadeau
2003 Section Chair
f.nadeau@ieee.org

NEW MEMBERS

The following individuals are IEEE members who are new to our Section:

Hatim F. Alqadah	Rich Kitay
Brian E. Anderson	Martin R. Kuchle
Roberto A. Bacus	Russell E. McMahon
William L. Beckwith	Debra Merry
Dwight Blubaugh	Lance Reid
Gary D. Cook	Lawrence P. Rice
Robert A. De Roziere	Andre L. Roux
Thomas S. Jacyszyn	Dave Williams
Rocky C. Karlage	

We wish to extend our welcome to all of our Section's new members!!!

Who Runs the Internet?

By Robert W. Lucky (submitted by Richard J. Reiman, Section Historian)

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When I started my career at Bell Labs in the early 1960s, I was an insignificant worker in the vast empire known as the Bell System. Sometimes I felt like a mechanic in the engine room deep in the bowels of a stately cruise ship. Somewhere far above me on the bridge of the ship the captain and officers had plotted the course across the boundless seas. Occasionally, over the din of the machines that surrounded me, I could hear the parties of the happy passengers--the telephone-using public--on the levels above me. My only concern, however, was the health of the engines. Did they need more oil? Could they be tuned to run faster or more efficiently?

I would often see pictures in the newspapers of the smiling company executives. Everything was under control; the future was planned and assured. There were shelves of Bell System reference books that detailed every feature of the existing network, and there were scores of reports charting its future evolution. At that time, the future transmission system being developed was the millimeter waveguide, a 5-cm-diameter pipe that would carry all the capacity needed well into the next century. That was a lot of capacity, because everyone would need a 6-MHz analog channel for their Picturephone. It was all preordained.

How the world has changed! A few years ago, I got a surprise call from the retired executive who had headed the engineering of the network in that bygone era. In my mind, he had been the keeper of the charts that had plotted the course of that grand ocean liner. He said that he wanted to find out what was going on in telecommunications today. Could I meet him for lunch?

At the restaurant he had hardly been seated when he burst out with a question. "Who runs the Internet?" he demanded.

I was taken aback. "No one runs the Internet," I replied, shrugging my shoulders helplessly.

I remember that question occasionally today. It's a good question. Who does run the Internet? Decades ago we trusted the captain to keep the ship on course toward its proper destination. But who is steering today?

In the early days of the telephone, back at the turn of the last century, there were competing telephone companies. Since these companies were not interconnected, it was sometimes necessary to have several telephones to be able to call different people in the same city. It is easy to see why it was thought that telephony had the characteristics of a natural monopoly, and why the Bell System eventually became a regulated monopoly. Someone had to bring the network together.

The monopoly ended with the consent decree signed in August 1982 that broke up the Bell System, but concern about the integrity of the network led to the creation of Bellcore as a keeper of network standards in the new competitive world. After all, there had to be some central place to worry about the evolution of the network.

Today there is no such central place. For better or for worse, the network steers itself. Assorted standards bodies issue standards that may or may not become fashionable. Manufacturers twist and turn between proprietary systems that may offer competitive advantage and standards-based, me-too approaches. Service providers ponder which interconnection and peer arrangements to accept. Meanwhile, guiding the whole thing in an abstract way are market forces and Metcalfe's Law, which says that the value of a network grows as the square of the number of users. In other words, to get maximum value, connect with everyone else and be like everyone else.

I often wonder how various networks pull together naturally--fireflies that light in synchrony or generators that pull into a power grid. When the first digital transmission systems were designed, a question arose about how they would be synchronized. The presumption was that the network would have a master clock. However, there was a research suggestion that if every clock in the network adjusted itself to the average of every clock that it saw, then the network would pull into synchrony. Interesting, but as you might expect, no one was willing to trust that democracy of clocks, and the final design used a master clock.

Today the Internet pulls in around the Internet protocol, IP, which has been relatively stable for the last 30 years. It's like a strange attractor in chaos theory. Applications may come and go, transmission media may come and go, but IP remains as the stabilizing force at the core of the network. Only by speaking IP can you be like everyone else.

So who does run the Internet? The answer is no one and everyone. Does this really work? Maybe it does. It's still an interesting question.

TO SUBSCRIBE TO THE ELECTRONIC NEWSLETTER

This newsletter is only available via e-mail or the Section's web page at <http://iee.cincinnati.fuse.net/> with the exception of new Section members (one issue only) or members who have specifically requested a copy be delivered through the U. S. Mail.

If you are a new Section member and would like to get this newsletter electronically, please contact Bob Morrison (Editor) at **513-287-3697** or by e-mail at j.r.morrison@ieee.org. Provide your name and member number. In case there are questions, please include a daytime telephone number as well.

If you would like the "Snail Mail" version, you must contact Bob Morrison via the above means or call the Section's voice mail at **513-629-9380**.

Take a leadership role in our technological society.

***Are you thinking about a career change or
that next promotion?*** The Masters of Science in
Technology (MST) program at Northern Kentucky
University could give you the advantage you need.

The MST degree has options in:

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- Quality Assurance
- Industrial/Engineering Systems

It can be obtained within a two-year period. Courses
are offered in the evening and over the Internet.

For more information about the Masters
of Science in Technology program at
Northern Kentucky University, visit the
MST homepage at www.nku.edu/~mst,
or call (859) 572-6352.

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IEEE NEWS

**IEEE-USA Consultants' Survey Reveals Median Incomes
Between \$75,000 and \$120,000**

WASHINGTON (January 10, 2003) - Fourteen percent of independent consultants earn more than \$200,000 a year, according to a recent survey of Alliance of IEEE Consultants' Networks (AICN) members.

Of the more than 2000 technical professionals queried who work as consultants, 400 responded to the 2002 survey. When consultants who work more than 50 percent of their time as an employee or contractor were winnowed out, 333 independent consultants remained.

Of the independent consultants, the highest median annual incomes (\$120,000) were reported by those with 1-10 and 11-20 years of technical experience. Those with 31-40 years experience reported a median income of \$110,000, while those in the 21-30 year range made a median of \$100,000. Those with more than 40 years experience had the lowest median (\$75,000).

"We think our findings are the best ever gathered and reported for technical independent consultants' fees," said Bob Gauger, P.E., of Irvine, Calif., who summarized the results for IEEE-USA. "It was by far the largest number of respondents anyone ever had. We received 137 responses to our national survey in 1998, and the Professional and Technical Consultants Association received only 91 responses to their recent fee survey."

Seven independent consultants reported income of at least \$1 million. Annual earnings among all age groups ranged from \$1,500 to \$5 million.

Median hourly fees for all independent consultants ranged from \$100 to \$125. The minimum was \$20 per hour; the maximum \$2,000. About 24 percent reported difficulty collecting their fees.

The AICN, an IEEE-USA committee, conducted the survey to help its members gauge how much to charge a client. By knowing what other consultants in similar fields charge, one can establish a fair, yet competitive fee. To view the entire survey results, go to <http://www.ieeeusa.org/business/2002feesurvey.pdf>.

IEEE-USA supports the career interests of self-employed U.S. IEEE members in a variety of ways, most notably through the IEEE-USA Consultants Database. This premier on-line directory matches prospective clients with the world's finest electrotechnology and information-technology professionals-for-hire. You can view the Consultants' Services homepage at <http://www.ieeeusa.org/business/aicn.menu.html>.

The IEEE Cincinnati Section Executive Committee **Member Names and Phone Numbers**

Cincinnati Section Voice Mail

Section Web Page

Fred Nadeau - Chair

- Vice Chair

Laurie Tappel - Treasurer

Ron Harbaugh - Secretary

Steve Olenick - Member-At-Large

Mark Strong - Member-At-Large

Jack Beckmeyer - Arrangements Chairman

Randy Holt - Membership

Bob Morrison - Editor

513-629-9380 (call for meeting reservations)

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